

REMARKS

Entry of the above amendments and consideration of the following remarks are respectfully requested. Upon entry of the above amendments, this Application will contain claims 1-25 pending and under consideration.

Claims 1-22 were provisionally rejected under the judicially created doctrine of double patenting over co-pending application USSN 09/611,332. Claims 1-22 were rejected under 35 USC §102(b) or in the alternative under 35 USC §103(a) over Little (US 5,071,580). For the reasons discussed more fully below, it is believed that the claimed invention is patentable over the cited art. Reconsideration of this application leading to timely allowance is requested.

Double Patenting Rejection

Claims 1-22 were provisionally rejected under the judicially created doctrine of double patenting rejections over the claims of co-pending application USSN 09/611,413. Applicant will submit an acceptable terminal disclaimer upon indication of allowable subject matter to overcome the double patenting rejection.

Rejections Under 35 USC §102 or In the Alternative Under §103

Claims 1-22 were rejected under 35 USC §102(b) or in the alternative under 103(a) over Little. Applicant has amended claim 1 to recite that the acid component in the engine coolant composition includes both an adipic acid and an aromatic carboxylic acid. Support for the amendment can be found, *inter alia*, in the application on page 7, lines 15-18 and on page 8, lines 3-11. Claim 4 has been amended by replacing benzoic acid with aromatic carboxylic acid to correspond to claim 1. It is believed that this amendment is a broaden amendment.

Little does not disclose or make obvious the invention as presently claimed in claim 1 that includes both adipic acid and an aromatic acid. Little is completely silent as to the addition of an aromatic acid.

Furthermore, the references cited in the Office Action do not suggest a coolant composition that contains both adipic acid and an aromatic acid. In fact, Pabon et al.

teaches away from the claimed invention. (Pabon et al. was cited in the Office Action on page 5 as pertinent to the disclosure.) Pabon et al. requires a mono carboxylic acid and specifically states that "using a dicarboxylic acid in place of the mono-carboxylic acid in formulations containing benzoic acid ... did not provide adequate protection against corrosion of metal surfaces." (Pabon et al., col. 4, lines 52-56.) Consequently, one skilled in the art after reviewing the references of record would not consider combining adipic acid (a dicarboxylic acid) and an aromatic acid in a coolant composition in combination with the anticorrosion inhibiting additive and the buffer as recited in claim 1.

Little either alone or in combination with the cited references does not disclose or make obvious the claimed invention that includes an aromatic carboxylic in conjunction with an aliphatic dicarboxylic acid such as adipic acid (or optionally a C₉-C₁₂ aliphatic dicarboxylic acid). Applicant respectfully requests that the rejections under §102 and §103 of claim 1 and claims 2-10, which depend from claim 1, be withdrawn.

Claim 12 has been amended to correct a minor typographical error on line 4 to replace "pr" with --or--

Claim 11 recites that the composition includes between 80 wt % and 99 wt % of at least one of ethylene glycol or propylene glycol. Little discloses a corrosion inhibitor that is only provided as either a slurry, a solid, a briquette, or a premix (Little, col. 3, lines 25-29, lines 40-47, and col. 6, lines 18-45.) At best the slurry contains only 5-20 percent of the vehicle (a glycol vehicle). (Id, col. 4, lines 49-53.) Consequently, it is believed that Little does not disclose or make obvious a coolant composition as presently claimed. Withdrawal of the rejections over claim 11 and claim 12, which depends from claim 11 is requested.

Claim 13 has been amended to similar to claim 1 to recite that the composition includes an aromatic carboxylic acid. Further claim 13 also recites that the composition includes hard water. Little does not disclose using water in the anti-freeze formulation. Little only discloses a glycol vehicle "as the only liquid component of the slurry". (Little, col. 4, lines 33-37.) Consequently one skilled in the art would not consider that Little discloses or suggests an antifreeze composition that addressing the problem of using "hard water" in a coolant system. The composition as recited in claim 13 has been

specifically formulation to provide beneficial effects to engines and coolant systems in the presence of hard water. (Application, page 6, line 22 - page 7, line 7.)

In light of the fact that Little does not disclose or suggest a coolant composition with "hard water," Applicant believes that claim 13 is patentable over this cited reference. Applicant requests that the rejections under 35 USC §102(b) or in the alternative under §103(a) of claim 13 and claims 14-18, which depend from claim 13 be withdrawn.

Claim 19 is directed to a method of reducing corrosion in a cooling system having recirculating liquid coolant comprising hard water. Claim 19 similar to claims 1 and 13 has been amended to include an aromatic carboxylic acid. As noted above, Little does not disclose or suggest either an additive formulation for use with hard water or a method of reducing corrosion in a system with hard water. Little's system contains essentially a glycol vehicle as the only solvent or coolant. None of the other cited references specifically address the problems associated with the use of hard water in a liquid coolant system. Consequently it is believed that the Little either alone or in combination with the cited references does not disclose or make obvious to one skilled in the art the inventions as recited in claim 19 including reducing corrosion in a system comprising hard water. Applicant respectfully requests that the rejections under 35 USC §102(b) (or §103) be withdrawn for claim 19 and for claims 20-22, which depend from claim 19.

New claims 23-25 have been added. Claim 23 recites that the components are completely dissolved. Support for claim 23 can be found in the application, *inter alia*, on page 11, lines 5-7. As noted above, Little discloses a corrosion inhibitor that is only provided as either a slurry, a solid, a briquette, or a premix (Little, col. 3, lines 25-29, lines 40-47, and col. 6, lines 18-45.) The components in Little's composition are not completely dissolved.

Claim 24 recites that the coolant composition includes hard water. Support for claim 24 is found in the application, *inter alia*, on page 7, lines 1-6, and in claims 13-22. Little does not disclose or suggest that his composition can be used with hard water.

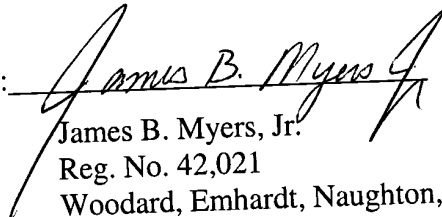
Claim 25 recites that the coolant composition contains "between about 30 wt % to about 70 wt % of at least one of ethylene glycol or propylene glycol." Support for this claim can be found in the application on page 11, lines 12-14. As noted above, Little's

composition contains at best only 5-20 percent of the vehicle (a glycol vehicle) (Little, col. 4, lines 49-53.)

Conclusion

In view of the foregoing remarks, it is respectfully suggested that the cited reference does not disclose or make obvious the claimed invention. Accordingly, reconsideration leading to withdrawal of all rejections under 35 USC §102(b) and §103(a) and passage of this application containing claims 1-25 are respectfully requested. Additionally, the Examiner is invited to telephone the undersigned attorney if there are any questions about this submission or other matters, which may be addressed in that fashion.

Respectfully submitted,

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VERSION WITH MARKING TO SHOW CHANGES

1. (Amended) An engine coolant composition comprising:
an organic acid component or salt thereof, said organic acid component comprising adipic acid ~~and at least one of benzoic acid~~, an aromatic carboxylic acid, and optionally a C₉-C₁₂ aliphatic dicarboxylic acid;
an anticorrosion additive including molybdate, and at least one of mercaptobenzothiazole, benzotriazole, tolyltriazole, nitrite, nitrate, and silicate;
a buffer component comprising a sodium salt of at least one of a borate salt or a phosphate salt, and
a freezing point depressant.

4. (Amended) The coolant composition of claim 1 wherein the aromatic carboxylic acid ~~benzoic acid~~ or the C₉-C₁₂ aliphatic dicarboxylic acid is included in an amount between about 0.5 wt % and about 5 wt %, measured as the free acid and based on the total weight of the coolant composition.

12. (Amended) The composition of claim 11 consisting essentially of, in weight percent:
between about 0.1 wt % and about 0.5 wt % adipic acid,
~~between about 2.0 wt % and about 3.0 wt % of an aliphatic dicarboxylic acid or~~
a salt thereof, said dicarboxylic acid selected from the group consisting of: sebacic acid dodecanedioic acid, and a mixture thereof,

between about 0.5 wt % and about 2.5 wt % benzoic acid,
between about 0.1 wt % and about 0.5 wt % nitrite salts,
between about 0.1 wt % and about 0.5 wt % nitrate salts,
between about 0.1 wt % and about 0.5 wt % molybdate salts,
between about 0.1 wt % and about 0.5 wt % of at least one of mercaptobenzothiazole, benzotriazole, or tolyltriazole, and

between about 80 wt % to about 99 wt % of at least one of ethylene glycol or propylene glycol.

13. (Amended) An engine coolant composition comprising:

an organic acid component, said organic acid component comprising adipic acid and at least one of an aromatic carboxylic acid, ~~benzoic acid~~ and a C₉-C₁₂ aliphatic dicarboxylic acid or salts of these acids;

an anticorrosion additive including molybdate, and at least one of mercaptobenzothiazole, benzotriazole, tolyltriazole, nitrite, nitrate, and silicate;

a buffer component comprising at least one of a borate salt or a phosphate salt; and

hard water.

19. (Amended) A method of reducing the corrosion of metal surfaces in a cooling system having a recirculating liquid coolant comprising hard water, said method comprising:

adding to said liquid coolant, an additive comprising an organic acid component or salt thereof, said acid component comprising a mixture of a C₄-C₆ dicarboxylic acid and at least one of an aromatic carboxylic acid ~~benzoic acid~~ or a C₉-C₁₂ aliphatic dicarboxylic acid; and an anti-corrosion additive including molybdate, and at least compound selected from the group consisting of: mercaptobenzothiazole, benzotriazole, tolyltriazole, nitrite, nitrate, and silicate.
